

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

~~WASHINGTON, D.C.~~

Forest Insect Laboratory
445 U. S. Court House
Portland, Oregon
October 24, 1941

MEMORANDUM ON THE 1941-42 PINE BEETLE CONTROL PROJECT
ON THE WASATCH NATIONAL FOREST - FALL OF 1941

By

R. L. Furness

During the period September 14 to October 2 ten days were spent on the mountain pine beetle control project on the Wasatch National Forest. Assistance was given the Forest Service in organizing the technical details of this project. The spotters and straw bosses were assembled and given a two-day course of instruction. Following this, the work of the spotters and survey crews was rechecked and suggestions made wherever necessary to assure uniform practice. The early treating work was checked and discussed with the men in charge. On October 1 various phases of the project were gone over in the field with the following members of the Forest Service: L. S. Gross of the Washington Office, W. L. Robb of the Regional Office, and J. T. Mathews and B. V. Groves of the Wasatch. In addition the spring oil treating in the Mirror Lake unit was examined and a final check was made of the Triton and fall-ortho experiments. General conditions in the Provo-Duchesne and Fish Creek-Rock Creek areas were observed, but the control units on the north side were not visited.

The spotters' school was conducted on September 16 and 17 at camp 1 along the Soapstone utilization road. Twenty spotters and straw bosses were in attendance. Mr. Clark Miles of the Regional Office gave instructions to the survey crew leaders on the method of laying out baselines by latitudes and departures. Mr. Merrill Miller, first aid specialist, discussed methods of accident prevention. The writer was assisted by Bruce Groves, Ben Swapp, and Grant Foote in outlining principles of spotting and control. After a preliminary instruction period, the men were divided into crews and sample strips were run through a heavily infested area on the Iron Mine unit. Problems were discussed as they came up. Special instructions that developed as a result of the school were mimeographed and distributed to the spotters to supplement the more general instructions prepared by D. A. Haster, originally for use in Region 2. A copy of the supplemental instructions is included with this memorandum.

An important feature that was brought out during the spotters' school was the presence of hold-over brood in many of the trees attacked in 1940. A positive check on this occurrence was possible, for the area where the sample strips were run had been spotted and the infested trees marked last spring. These marked trees were not treated. This fall when they were re-examined a considerable number were found to be still heavily infested. Brood in the larval, pupal, and callow adult stages was observed. Sample trees were felled and examination of these revealed that the hold-over brood extended well into the tops. The lateness of the season indicated that there would be little additional emergence this fall. Consequently, it was decided that the hold-over trees containing a considerable amount of brood should be treated along with the 1941 trees. Rules for marking the hold-overs were developed. All such trees were sampled at head height. It was found that those trees having definitely greenish foliage and moist inner bark at the point of sampling were very largely the ones containing sufficient brood to justify treating.

On September 18 the Mirror Lake control unit was visited in company with Mr. Arnold Hanson of the Regional Office. A representative number of trees treated with ortho and oil at various times during July were examined. Brood mortality in these trees was found to be very nearly 100 percent. Only in a few cases, where the bark around large knots had not been fully covered, was any survival noted. The fall examination, together with the one made last July, indicates that the oil treating in the Mirror Lake unit was very effective in killing brood in the treated trees. This year's survey further substantiates the effectiveness of this control project.

The fall survey was still in progress when the writer left the Wasatch on October 2. Since then the survey has been completed and a summary of the findings has been furnished through the Regional Office. In his letter of transmittal the regional forester has outlined the opinion of the Forest Service regarding the effectiveness of last year's control work and has also set up priorities for this year's work. The pertinent points in this letter are quoted as follows:

"We feel that the work on the north side of the Uintas comprising the West Fork, Smiths Fork and East Fork units has been successful. The work done on the south side on the Broadhead-Haystack unit has not. The Mirror Lake we believe has been.

"We do not know that you would agree but we feel that the situation on the Broadhead-Haystack unit is to be expected in view of the fact that it lies immediately adjacent to the bad infestation on the Iron Mine unit.

"We feel that our general plan of action should be: (1) To hold what we have and then (2) clean up additional units. Under such plan then our highest priority work would be to clean up the north side units on the Wasatch. Next on the list should be to clean up the north side of the Ashley and third would be to clean up and hold the worked-over south side units. Finally, we should attack new units on the south side.

"We plan then on a small clean-up job off the forest on the East Fork of Blacks Fork listed as the Wyoming unit and estimated at 640 trees plus a job of about that size east of the Hewinta station. We also plan to clean up the Ashley for which estimates have not yet been received but which will probably be of 2,000 to 3,000 trees.

"We will rework the Broadhead-Haystack unit and further reduce the Mirror Lake infestation and finally we hope to clean up the Iron Mine infestation.

"Further than this funds will probably not be available."

The writer is in nearly complete agreement with the opinions expressed above. The matter of priorities is already well established and has been discussed in detail, both in the field and in correspondence dealing with the Wasatch project. It would seem advisable, however, to make absolutely certain that the Ashley center is cleaned up even though it might mean that some of the other north side units may not be covered. These units on the Wasatch were treated largely to prevent spread to the Ashley. Now the situation on the Ashley seems acute. If the outbreak on the Henry's Fork is allowed to develop awaiting the final mopping up on the Wasatch, a serious infestation may easily develop.

As for the heavy infestation in the Rock Creek-Fish Creek areas, this can well be left until the last for the stands in this area have already been depleted to the point where the beneficial effects of control will be largely confined to the prevention of spread to other areas. In the case of the Iron Mine unit spread of infestation seems to have already reduced the effectiveness of control in the adjoining Broadhead-Haystack unit. Actually the Mirror Lake, Broadhead-Haystack, and Iron Mine units comprise a continuous infestation area and control in any one or two units will not be successful without control in all three. Therefore, it is proposed that the control already undertaken in the Iron Mine unit be completed, even though this might also mean a reduction in some of the maintenance work.

For purposes of comparison a summary has been made of the 1940 and 1941 survey estimates of mountain pine beetle infestation on the Wasatch (see table 1). It is recognized that in some units either more or fewer trees than the 1940 estimate were treated, but the figures on number of trees treated and the acreage actually covered are not all available. The estimates, however, should be sufficiently accurate to give a fair measure of the effectiveness of control on treated units and also an indication of the infestation trend on untreated units. In table 1 the 1940 and 1941 estimates are compared on a per acre basis. The following points stand out.

The estimates for all three main areas show an average downward trend of infestation. Part of this apparent decrease may be the result of including more lightly infested acreage in the 1941 survey than in that of 1940. Even so, it is certain that no such increases occurred as did last year, and it is probable that there has been an actual decrease.

During 1941 there was a marked reduction averaging 90.4 percent on the north side area. Much of this reduction must be attributed to thorough treating on the West Fork, East Fork, and Smith's Fork units.

In the Provo-Duchesne area generally, the 1941 infestation is 37.8 percent less than in 1940. The Mirror Lake unit shows a 73.6 percent reduction following control, but the much larger Broadhead-Haystack unit shows only a 27.1 percent reduction. Very likely infiltration from the adjoining untreated Iron Mine unit nullified control efforts on the Broadhead-Haystack unit. It is not surprising that infestation in the Iron Mine unit should show signs of declining, for the host material there is rapidly becoming exhausted. The comparative status of the Hades Canyon center is uncertain because a 1940 estimate is lacking.

When averaged, the 1941 infestation in the various units of the Rock Creek area shows a decrease of 33.8 percent but Squaw Basin and Fish Creek show increases of 24.2 and 54.4 percent respectively. Infestation in the Rock Creek unit remains at approximately the same level as last year with only a 7.5 percent decrease.

Table 1
Wasatch Survey Estimates - 1940 and 1941

		1940			1941						Percent
											Relationship
											to 1940
Area	Control Unit	Acre- age	Number of Attacks	per Acre	Acreage	Percent Cruise	Number of new Attacks	of Hold- overs	Total Number of Attacks	Attacks per Acre	Attacks
North											
Side	Wyoming	—	—	—	8,144	2.5	640	—	640	.079	—
"	West Fork	11,904	3,040	.255	13,412	2.5	120	—	120	.009	-96.47
"	East Fork	14,042	7,442	.530	20,924	2.5	400	—	400	.019	-96.42
"	Smith's Fork	16,968	1,527	.090	27,680	2.5	720	—	720	.026	-71.11
Sub Total		42,914	12,009	.280	70,160		1,880	—	1,880	.027	-90.36
15%											
Provo-	Norway	—	—	—	260	6.6	30	—	30	.115	—
Du-	Flats	—	—	—	—	—	—	—	—	—	—
chasne	Hades	—	—	—	—	—	—	—	—	—	—
"	Canyon	—	—	—	1,280	2.5	1,120	200	1,320	1.031	—
"	Upper	—	—	—	—	—	—	—	—	—	—
"	Setting	—	—	—	2,560	2.5	197	—	197	.077	—
"	Mirror	—	—	—	—	—	—	—	—	—	—
"	Lake	4,480	1,254	.280	7,000	2.5	320	200	520	.074	-73.57
"	Iron Mine	5,800	16,704	2.880	10,610	2.5	14,272	2,868	17,140	1.615	-43.92
"	Broadhead-	—	—	—	—	—	—	—	—	—	—
"	Haystack	10,960	2,875	.262	14,200	3.0	2,040	670	2,710	.191	-27.10
Sub Total		21,240	20,833	.981	35,910		17,979	3,938	21,917	.610	-37.82
Rock	Miners	—	—	—	—	—	—	—	—	—	—
Creek	Culoh	—	—	—	300	2.0	100	—	100	.333	—
"	Corral	—	—	—	—	—	—	—	—	—	—
"	Creek	500	685	1.370	520	5.0	160	140	300	.577	-57.88
"	Peterson	—	—	—	—	—	—	—	—	—	—
"	Culoh	—	—	—	1,120	2.5	80	—	80	.071	—
"	Squaw	—	—	—	—	—	—	—	—	—	—
"	Basin	2,880	547	.190	2,880	2.5	600	80	680	.236	+24.21
"	Fish Creek	3,440	2,408	.700	3,552	2.5	3,760	80	3,840	1.081	+54.43
"	Rock Creek	5,850	9,184	1.570	8,064	2.5	9,640	2,080	11,720	1.453	-7.45
"	Granddaddy	—	—	—	—	—	—	—	—	—	—
"	Lakes	—	—	—	8,820	2.5	200	—	200	.023	—
Sub Total		12,670	12,824	1.012	25,256		14,540	2,380	16,920	.670	-33.80
Total		76,824	45,666	.594	131,326		34,399	6,318	40,717	.310	-47.81